force produced by the difference of temperature was balanced by means of a potentiometer. A change in the emf. of one microvolt gave a galvanometer deflection of 2 mm. At first only moderate differences of temperature (50°) were used, but when not the slightest effect was observed on magnetizing the rods, we finally sent steam through the heating chamber, while ice-cold water flowed through the other. In this case also, though the thermoelectromotive force amounts to several millivolts we were unable to detect any change as large as 0.5 microvolt for any of the alloys, even in fields as large as 1,000 gausses. Bidwell found for iron and a temperature difference of about 85° a change as large as 15 microvolts in a field of 200 gausses in the case of nickel, and 25 microvolts. In connection with this, we may add that C. E. Mendenhall has informed us by letter that he was unable to find Kerr's phenomenon in a piece of Heusler alloy. We may therefore draw the interesting conclusion that in these alloys certain properties seem to be absent which have always been thought to be closely connected with magnetic substances.

A POCKET SPECTROPHOTOMETER.

By P. G. Nutting.

The instrument here described is very small and inexpensive and requires practically no adjustment or calibration. Its sensibility is ample for all but precision work, while its simplicity and compactness recommend it for general laboratory use. Aside from its extremely small size, the use of this combination of amici and nicol prisms is believed to be a novel feature in spectrophotometers.

As may be seen from Fig. 1, the instrument is essentially a pocket spectroscope with two nicols added, one before and one behind the

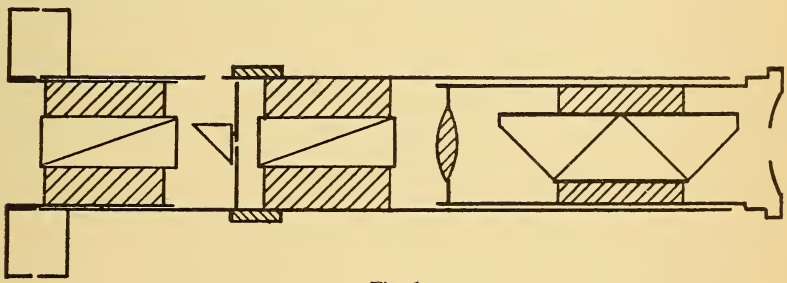

Fig. 1.

slit. The first nicol may be rotated about its axis, thus varying the intensity of the light coming from directly in front of the instrument but leaving the light coming from the side unaffected. The amount of this rotation is read off on the attached circular scale 5 cm in diameter.

For more accurate work or for comparing lined spectra (say an arc with a Nernst lamp) an ocular and ocular slit are added as in Fig. 2. This slit is kept of constant width (say 0.2 mm) and displaced laterally for settings on various spectrum lines.

The figures are of the actual dimensions of the instrument. Such an instrument was recently constructed for the Bureau of Standards by the firm of R. Fuess, of Steglitz, from designs by the

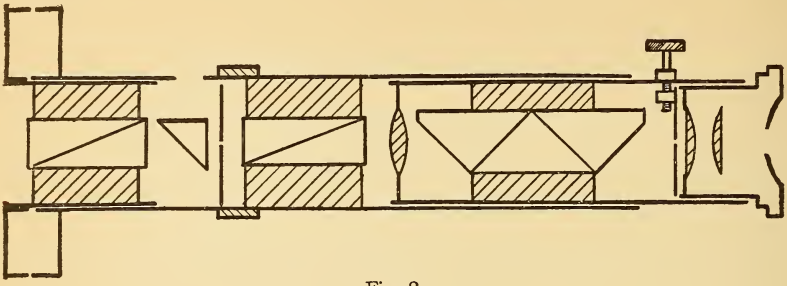

Fig. 2.

writer similar to Fig. 1, and to the excellence of their optical and mechanical workmanship is due the surprisingly high order of accuracy and sensibility of which this spectrophotometer is capable.